

The Future Is Just Around the Corner

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By Eliot Levinson - January 2001

For the last 20 years, there have been predictions that computers will magically transform schools. So far, they haven't. When it comes to the meat and potatoes of schooling -- like textbooks, length of the school day, physical plant, teacher-centered classrooms and communications within the organization -- schools function similarly to the way they operated in 1920 or 1960.

Although the basics look the same on the surface, over the last five years, the foundation for significant technology-based change has been under construction:

*** There is one computer with Internet access for every nine students** in American schools, and the ratio is continuing to drop as you read this column.

*** New Web-based instructional materials and administrative systems are growing daily, and 95 percent of schools are connected to the Internet.**

*** During 1998-99, nearly \$7 billion was spent on educational technology.**

Palpable, visible change in the basics is close at hand. Every school system has staff who are dedicated to the integration of technology into the curriculum. Over the last decade, schools have been building the organizational and infrastructure foundation necessary to support technology-based change of instructional processes. The foundation has been composed of networks, computers, software, staff development and administrative structures. The Internet is the girder on which the systemic changes in education are being hung. Within the coming four years, a remodeled educational system will rise out of the foundations.

What happened to banks in the 1970s, manufacturing plants in the 1980s and the travel industry in the 1990s is about to happen in schools. Technology is about to change the basic ways work is accomplished, and the business will evolve into the management of learning rather than the management of schools.

We predict that by the year 2005, changes in the basic materials, and processes, of education will be demonstrated in many locations throughout the country. We are not saying that you will not recognize education as you know it, or that all schools will be radically transformed. What we are saying is that five years from now, you will see considerable technology-based innovation in many school systems, and there will be technology-based alternatives for accomplishing instructional, management and communication processes.

DoDDS, The Department of Defense Dependents Schools has developed a framework, the 5 Cs, which they use to measure the educational impact of technology. The 5 Cs include: computers -- hardware and input devices; curriculum -- instructional materials; corporate -- administration and management; connectivity -- communication within schools and to the home; and competency -- professional development for teachers. We will use the 5 Cs to frame the significant changes in the process and structure of education over the next five years.

In looking out to the year 2005, we predict that the following will occur:

Computers: includes all types of input devices.

By 2005, the ratio of computers to students will be 1-to-5. There will be a widely used range of input and browsing devices that will help students and teachers access and share information. Though computers will still be the most prevalent form of hardware, Web appliances, hand-held devices and video machines would be common.

Curriculum: We are including both instructional materials and the interaction between student and teacher and student and resources.

By 2005, at least 40 percent of instructional materials will be delivered over the Web, rather than as print matter. The change is a fourfold increase over current delivery of electronic materials. In the last year, we have seen the proliferation of the initial Web-based curriculum. New instructional materials will be more dynamic than our current textbook or Web-based materials. Here are some attributes which we will see as the new curriculum unfolds:

- * Instructional materials for students will be bundled with assessment linked to standards and professional development for teachers.
- * Materials will be customized to fit the individual needs of school systems and individual students. They will be tailored to particular standards and be focused on the needs of specific teacher and student populations.
- * The curriculum will have memory and some built-in intelligence. What we mean by this is that the quality will be improved continually based on the experience of users, and there will be engines to assist in such issues as alignment to standards and feedback to students.
- * Materials will be extremely interactive, and there will be considerable use of all of the media (i.e. sound and graphics) as well as print.

Student control of learning. The Web has fueled explosive growth of homeschooling. This growth demonstrates that students will explore and organize their own education. We see this trend expanding tremendously, as students in schools access resources on the Web to support their own learning. Teachers will begin to take on the guiding, facilitative and analytic role that has been discussed for the last few years.

Corporate: includes the management, decision-makers and structure of schools. This is the area where the most visible changes will occur. The ones we wish to focus on are management of educational materials and the time and place of schooling.

Outsourcing and partnership for core administrative processes and materials. There is now a small but significant group of companies who are providing Web-based instructional materials, management systems for student information, finance, procurement, technology and curriculum. This trend will continue, due to the combination of relatively low costs, the complexity of technology and the shortage of technology personnel in schools. Many school systems will be outsourcing and partnering the management of core systems like finance, purchasing and accountability to specialized Web-based firms that will provide these services.

Connectivity: refers to network-enabled communication, which occurs within the school and between the school, home and the greater world. The ubiquitous presence of connectivity is driving the changes in delivery of learning.

The high-speed networks are now just about in place. In the coming years, they will be the basis for anytime, anywhere educational programs and services.

* Courses, similar to the current virtual high schools, will be given over the Web, allowing students and adults to take them at a convenient time.

* Highest-quality courses, in such areas as Advanced Placement math, foreign language and vocational subjects, will be provided to students in many different places.

Schools will purchase high-quality Web-based programs from other school systems when they are not good in a particular discipline and sell courses to others in areas where they are strong.

Competence: refers to professional development and just-in-time adult learning.

Professional development will become very important. The Web will solve the problem of having to have groups of teachers in the same place at 3:00 p.m. for training.

*** New staff development will be a combination of Web-based, just-in-time, video-streamed materials with in-person and Web-based coaching.**

*** Teachers will be able to receive customized staff development on demand.**

*** Staff development will address both the subject matter educators teach and the way in which they teach it.**

Now that the foundation has been laid, the coming five years in education will be an exciting time. In this period, we will see technology utilized to change the educational process.



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